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Molecular cloning and expression of a cDNA encoding the secretin receptor.

Ishihara T, Nakamura S, Kaziro Y, Takahashi T, Takahashi K, Nagata S.

Osaka Bioscience Institute, Japan.

Secretin is a 27 amino acid peptide which stimulates the secretion of bicarbonate, enzymes and potassium ion from the pancreas. A complementary DNA encoding the rat secretin receptor was isolated from a CDM8 expression library of NG108-15 cell line. The secretin receptor expressed in COS cells could specifically bind the iodinated secretin with high and low affinities. Co-expression of the secretin receptor with the alpha-subunit of rat Gs protein increased the concentration of the high affinity receptor in the membrane fraction of the transfected COS cells. Secretin could stimulate accumulation of cAMP in COS cells expressing the cloned secretin receptor. The nucleotide sequence analysis of the cDNA has revealed that the secretin receptor consists of 449 amino acids with a calculated Mr of 48,696. The secretin receptor contains seven putative transmembrane segments, and belongs to a family of the G protein-coupled receptor. However, the amino acid sequence of the secretin receptor has no significant similarity with that of other G protein-coupled receptors. A 2.5 kb mRNA coding for the secretin receptor could be detected in NG108-15 cells, and rat heart, stomach and pancreatic tissue.

PMID: 1646711 [PubMed - indexed for MEDLINE]

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